

Kleinrock
SPADE Administrative Note #118

J. Postel
25 June 71

AGENDA

1. Fill in Jon on recent happenings
 - a. Network
 - b. System
 - c. Documentation
 - d. Design Sessions
2. Schedule Next week Network Development

J. Postel
25 June 71C. Kline

Worked on LISP. It's all written (program that is) and is in final testing. Users soon. Thesis is being written. Also, signed onto BBN and lost to it in chess.

W. Naylor

1. Put some debugging features in NWLOGGER (i.e. Point message when a special code is received.)
2. Crashed the system once and found bugs in STOP, KILLPROC, AND KILLJBPR systems calls. Should check code returned from READQX to see if process is still there, currently no check is made and the calls can hang in Bsys as a result.
3. Told Lou about changes to PRINT and READ calls so a fake console process can take console away from attached process which has done a READ or PRINT and is now stuck in B-sys. (Fake console should store -1 in BYTCNT field of attached process.)

NEXT WEEK

1. Fully debug NWLOGGER
2. Attend ARPA Grad Student Mtg. in Pacific Grove, June 29 - July 2.

L. Nelson

(Last week and this week)

1. Thought I discovered a bug in T.G.'s Startproc. If an entry in Static File refers to a non-existent file in Startproc's root and an attempt is made to start that job or process, then a subsequent kill or halt system doesn't work. Upon performing further tests, I could not repeat the failure and the code looks alright. I don't understand.
2. I've been reading several articles on operating systems and specifically on interprocess communication. Hanson, in CACM April '70 and Walden in RFC #62 have exerted the most influence on my thinking. I have been attending the design meetings with SK, HB, BN, JP and (maybe he will return) DM. We are redesigning our fake

J. Postel
25 June 71L. Nelson cont.

console mechanism in SEX. At least that is our justification (read cover story) for the meetings. We are embarking on a rather ambitious plan. We are designing as clean a system as we can. So far we have been piling kludge upon kludge to make the fake and real consoles work. One of our goals is to make consoles (real and fake), connections, and sequential files look the same to a process. We will also design what the rest of the system should look like. Then we will decide what part of the design (maybe all) is feasible to implement into SEX. We will also specify an implementation sequence which will perturb our users little or none at all. Things will have to look the same for a long while. There are great advantages to this plan. It provides me with a long range (multi-year) scenario for system improvement. Note that we don't have to use students and other members of the SPADE group to implement the changes. However, they are needed for the designing.

3. Made system listings for Howard Brodie and then watched the new Message Program being installed into PUBLIC.

4. Attended a meeting of CSK, JW, DM to find out JW and DM's planned changes to the Scheduler (Section 2 of ASYS.)

5. Build an exp. ASYS using a fast disc scheduler (Section 5 of ASYS) with measurements which Vint provided. I didn't notice that ASYS had grown to the point that it overflowed into Vint's scratch page above ASYS. The result was that it wiped out a good portion of disc 1F3 (enough to destroy SYSINIT). Naturally, I had gotten complacent enough not to dump the discs onto the interim tape so we lost changes from user activity from 1000 to 1300 much to my great chagrin. That won't happen again.

6. We had 2 good system crashes this week. The first was an honest to goodness disc error. We are not equipped to handle those errors, so we hang in ASYS. CSK says we crash about once every 6 months this was. The other crash was a BSYS trap to ASYS (verbatim) caused by BN messing around in BSYS then, SPADE. He found a bug in KILLJOBPR in BSYS. The routine ignores the possibility that

J. Postel
25 June 71

the process it is trying to kill may not exist and it hangs up in BSYS. This is perhaps why the system won't go down clearly when we "lose" a network logger.

7. I finally finished writing the document describing T.G.'s Startproc. It should be out by June 28 at the latest. I hope to install the Startproc today since the new UP and DOWN procedures have already been published.

8. Went to SRI with Jon for 2 days for a tutorial on their On Line System. NLS contains a very powerful editor, journal, output processor, collector-sorter and L/O language compiler. We learned how to use the editor and a little of the journal. The plan is for our site to use NLS starting about July 1. They want critical comments about it so they can change it to conform to the desires of the Network user community. I talked to John Melvin, their Network TLO, on Monday about scheduling mutual tests of our post RFC #107 and Document 2 and 3 network programs. He will call us probably early next week to do this. Maybe you can tell that I am anxious to use NLS. While up there, I was very impressed with their mouse and keyset and display mechanism for using NLS. We found out that we can equip one of our IMLAC's to do this for about \$2000.

NEXT WEEK

1. Continue design of system changes.
2. Build new measurement ASYS for Johnny.

J. Postel

This week I went camping in Kings Canyon, visited BBN and MIT to discuss Network study and experiments.

NEXT WEEK

See that network programs are up and in standard system.

J. Postel
25 June 71K. Sei

This week I started work on the actual writing of my thesis. As a result, most of my time has been spent researching material in the library. To make my Wand controller neat, I added a flashing "error" message routine, that will display appropriate error codes on the CRT.

Next week, I plan to spend most of my time on my thesis. My schedule for each day is as follows:

Arrive @ 10:00 a.m. to office (it beats driving thru L.A. rush-hour traffic from where I live)

Lunch @ 12

In around, near office 1-7 p.m. Plan to be in Monday thru Saturday.

E. Walton

This week I tried out several of the Public processes--EDIT, MSG. DLOAD, FORTRAN, DEBUG, WHO, GAME, TIMMY, ABACUS.

I tried the tape process.

I wrote a Fortran program to use the process on, and had it ready to run, signed off for a bit, got back on (after several attempts, since I had changed my security code) and discovered the day's work had been lost when the system crashed.

I learned how to load a tape. I also went down to HSCF and tried Tortos. So far, I don't think much of it.

NEXT WEEK

Probably more of the same.

J. Wong

1. Attended a meeting with Chuck, Lou, Bill and Dr. Muntz and talked about my thesis. We decided to make the following changes to the system.

a. Change quantum time in Long Quantum Queue to real time so that those processes with page fault, badly won't hurt the others.

J. Postel
25 June 71J. Wong

- b. Add system call to add. or delete a page in the preload char.
Also to clear the preload char.
- c. Add a Least-Recently used mechanism to select pages to the preload chain when page faults occurs.
- d. Change the disk scheduler.
- e. Change the scheduling algorithm.

2. Put in the RESET mechanism to the new NCP, we are able to sign on to BBN.

3. Attended design sessions for the overall design of a User system.

4. Got the whole NCP commented!

NEXT WEEK

- 1. System measurements - mainly on response time and page fault frequency for Master commands.
- 2. Code the system call for fixing up preload chains.
- 3. Network